

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/727,117 Confirmation No. 2400
Applicant : Robert Arther
Filed : November 30, 2000
Title : COMPOSITIONS FOR ENHANCED ACARICIDAL
ACTIVITY
Group Art Unit : 1616
Examiner : SABIHA NAIM QAZI
Docket No. : MO 6049

VIA EFS

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF ROBERT ARTHUR UNDER 37 C.F.R. §1.132

1. I am the inventor of the subject matter of the above-identified patent application.
2. I received a Master of Science degree in Wildlife Parasitology from Colorado State University, in 1975. Thereafter, I received a Doctorate in Veterinary Parasitology from the University of Illinois in 1978.
3. From October 1, 1979 to date, I have been employed by Bayer HealthCare LLC, Shawnee, KS, US, in particular in the Animal Health Division. My present position is Manager of the Department of Parasitology and Entomology.

4. Insects and acarids are distinct classes within the Phylum Arthropoda. Insects, such as fleas, lice, and flies are members of the Subphylum Uniramia Class Insecta,; whereas acarids, such as ticks and mites are members of the Subphylum Chelicerata, Class Arachnida,. There are distinct anatomical, structural , biochemical, physiological and evolutionary development pathway ,differences between these classes.
5. Chemical insecticides that have activity on insects do not necessarily have activity on acarids.
6. At the time of the invention it was known that chloronicotinyl compounds were effective against insects. It was also known that chloronicotinyl compounds displayed little or no activity by themselves against acarids, such as ticks or mites.
7. It was also known, at the time of the invention that pyrethroids displayed activity against both insects and acarids, however, the degree and duration of the activity was frequently less than optimal .
8. Under my direction and control, a study was executed to evidence the acaricidal activity of a composition that included both permethrin and imidacloprid of the present invention versus permethrin alone, imidacloprid alone,as well as fipronil and selamectin.
9. As described in Example 1, 36 dogs were divided into 6 groups of 6 dogs per group. The dogs were bathed with mild non-medicated shampoo and thoroughly combed to remove any existing fleas or ticks 7 to 14 days prior to treatment. The dogs were then infested with 100.unfed adult ticks (50 *Dermacenter variabilis* and 50 *Rhipiciphalus sanguineus*) and 100 unfed adult fleas (*Ctenocephalides felis*). Each group received a single topically-applied treatment of either 45% permethrin, 9.1% imidacloprid, a

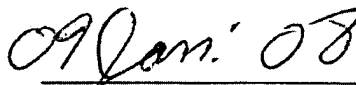
combination of 45% permethrin and 9.1 imidacloprid, 9.7% fipronil, or 12% selamectin. The sixth group did not receive any treatment. Each dog was examined visually for fleas and ticks on Days 1, 7, 14, 21, and 28 following treatment. Live ticks were counted visually on Days 2, 8, 15, 22, and 29.

10. As can be observed from Tables 2 and 3 in the specification, the combination of permethrin and imidacloprid produced a faster kill of both tick species than either permethrin or imidacloprid alone. The combination provided 82 to 86% killing of ticks by day 2 post application and approximately 100% killing of both species of ticks by day 3 post application. Permethrin alone required 7 days to approach a 100% killing of ticks.
11. The length of time that significant tick control occurred with the combination of permethrin and imidacloprid was significantly longer than that of permethrin alone or imidacloprid alone. The data indicate that the combination of permethrin and imidacloprid controlled 85 to 92% of both species of ticks by 28 days post application.
12. The rapid onset of killing of ticks by the combination of permethrin and imidacloprid indicates that there was effective spreading of both active ingredients.
13. The length of time that the combination remained active against both species of ticks and fleas indicates that there is adequate distribution of the active ingredients into the skin of treated animals.
14. As such the combination of permethrin and imidacloprid produces a synergistic effect against killing acarids.

15. The applicant further declares that all statements made herein are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.



Dr. Robert Arther



Date